

# Marine Physical Laboratory

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## R/P FLIP Oceanographic Surface Scattering (FLOSS) Experiment Support

Final Report to  
Office of Naval Research  
Contract N00014-89-D-0142 (DO#2)

Principal Investigator: Fred H. Fisher

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University of California, San Diego  
Scripps Institution of Oceanography

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This experiment, the FLIP Oceanographic Surface Scattering (FLOSS) experiment was directed at obtaining monoscattering surface data in rough weather. In this work, MPL was tasked to modify FLIP and provide support services for mobilization and deployment of the flextensional sound source array and the parametric array in conjunction with NUSC and NCEL personnel. MPL participated in meetings addressing the scientific issues and environmental supporting data required. This also involved gathering the environmental data regarding site selection for the experiment.

The major mechanical task was to make possible the deployment and recovery of the 10,000 pound flextensional sound source array from its capture frame on FLIP. Under UCSD Proposal No. 891395, items 1 through 7 were accomplished and item 8 was the subject of continuing discussions and meetings under the aegis of the sponsor beyond the time frame of this proposal. All work necessary to prepare for an engineering sea test was completed under this proposal. The capture frame was constructed and installed on FLIP, after the hull was modified to accept it. The 15,000 pound winch was purchased and installed on the lower platform of FLIP after it was strengthened to handle the weight of the winch and the flextensional sound source array. Television cameras for monitoring the flextensional array and the parametric array deployments were purchased. A successful engineering sea test was conducted 13-14 September 1989 in which the sound source frame with dummy transducers was deployed and recovered from FLIP. The winch system, capture frame and TV system for monitoring the deployment worked without any difficulties. A video recording of the deployment was made.

Under UCSD Proposal No. 891423, the FLOSS project was augmented to include the design and construction of a horizontal boom for obtaining directional acoustic data, and providing for installation of ancillary wave measuring equipment to provide directional wave spectrum data. These modifications arose from requirements developed during discussions of environmental and scientific issues under the first proposal.

Under UCSD Proposal No. 901125, further preparatory work was done on FLIP for the proposed experiment in January/February, 1990. This proposal was supplemental to No. 891423 and was directed to system engineering and general ship management tasks on FLIP necessary for the FLOSS engineering equipment checkout test and the experiment itself.

One month prior to the scheduled experiment, the decision was made to not do the experiment on the basis that the length of the rough weather episodes at the

site selected for the experiment was not long enough to provide time for the various experimental questions to be addressed under similar weather conditions.

The cancellation of the proposed FLOSS experiment does not preclude performing this experiment at possibly a different site at a later date. Accordingly, the equipment for the FLOSS experiment has been demobilized at various sites, including the equipment retained by MPL. Some of it will be used in related reverberation experiments which will be of use in a future monostatic reverberation experiment.